

WHAT IS CLAIMED IS:

1. A bicycle shift operating device, comprising:
a first operating member;
a cable winding mechanism mounted on a first pivot axle at a first fixed
5 location and configured to be selectively retained in one of a plurality of shift
positions;
a follower link having a first end pivotally coupled to said first operating
member and a second end mounted on a second pivot axle at a second fixed location;
and
10 an operating link having a first end pivotally coupled to said first operating
member and a second end mounted on said first pivot axle, said operating link being
operatively coupled to said cable winding mechanism to rotate said cable winding
mechanism about said first pivot axle between said shift positions in response to
movement of said first operating member.
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2. The bicycle shift operating device according to claim 1, wherein
said cable winding mechanism includes a cable winding member and a ratchet
member mounted on said first pivot axle, and
a locking member is operatively engaged with said ratchet member to hold
20 said cable winding member in one of said plurality of shift positions.
3. The bicycle shift operating device according to claim 2, wherein
said operating link includes a winding pawl arranged to rotate said ratchet
member upon movement of said first operating member from a normal rest position to
25 a shift position.
4. The bicycle shift operating device according to claim 2, further
comprising
a second operating member arranged to disengage said locking member from
30 said ratchet member.

5. The bicycle shift operating device according to claim 4, wherein said operating link includes a winding pawl arranged to rotate said ratchet member upon movement of said first operating member from a normal rest position to a shift position.

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6. The bicycle shift operating device according to claim 2, said cable winding member and said ratchet member are separate individual elements that are fixed to rotate together on said first pivot axle.

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7. The bicycle shift operating device according to claim 2, wherein said cable winding mechanism further includes a biasing member arranged to apply an urging force on said cable winding member and said ratchet member to rotate about said first pivot.

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8. The bicycle shift operating device according to claim 1, wherein said bicycle shift operating device is coupled to a handle bar mounting bracket that includes a brake lever.

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9. The bicycle shift operating device according to claim 1, further comprising
a return biasing member arranged to operatively apply an urging force on said first operating member to urge said first operating member from a shift position to a normal rest position.

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10. The bicycle shift operating device according to claim 1, wherein said cable winding mechanism includes at least three of said shift positions.

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11. A bicycle shift operating device, comprising:
a first operating member;
a cable winding mechanism mounted on a first pivot axle and configured to be selectively retained in one of a plurality of shift positions;

an operating link having a first end coupled to said first operating member and a second end mounted on a second pivot axle, said second pivot axle being spaced from said first pivot axle and arranged to be parallel to said first pivot axle; and

5 a winding pawl coupled to said operating link and operatively engaged with said cable winding mechanism such that movement of said operating link about said second pivot axle in a first rotational direction rotates said cable winding mechanism about said first pivot axle between said shift positions in response to movement of said first operating member.

10 12. The bicycle shift operating device according to claim 11, wherein said cable winding mechanism includes a cable winding member and a ratchet member mounted on said first pivot axle, and

a locking member is operatively engaged with said ratchet member to hold said cable winding member in one of said plurality of shift positions.

15 13. The bicycle shift operating device according to claim 12, wherein said winding pawl is arranged to rotate said ratchet member upon movement of said first operating member from a normal rest position to a shift position.

20 14. The bicycle shift operating device according to claim 12, further comprising a second operating member arranged to disengage said locking member from said ratchet member.

25 15. The bicycle shift operating device according to claim 12, wherein said first operating member is pivotally coupled to a first end of a follower link that has a second end mounted on a fixed pivot axle such that said first operating member, said operating link and said follower link form three links of a four bar linkage that controls movement of said first operating member.

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16. The bicycle shift operating device according to claim 12,
said cable winding member and said ratchet member are separate individual
elements that are fixed to rotate together on said first pivot axle.
- 5 17. The bicycle shift operating device according to claim 12, wherein
said cable winding mechanism further includes a biasing member arranged to
.. apply an urging force on said cable winding member and said ratchet member to
rotate about said first pivot axle.
- 10 18. The bicycle shift operating device according to claim 11, wherein
said bicycle shift operating device is coupled to a handle bar mounting bracket
that includes a brake lever.
- 15 19. The bicycle shift operating device according to claim 11, further
comprising
a return biasing member arranged to operatively apply an urging force on said
first operating member to urge said first operating member from a shift position to a
normal rest position.
- 20 20. The bicycle shift operating device according to claim 11, wherein
said cable winding mechanism has more than three of said shift positions.
21. A bicycle shift operating device, comprising:
a first operating member arranged to reciprocate in a first direction;
25 a second operating member arranged to move in a second direction that is
substantially parallel to said first direction;
a cable winding mechanism operatively coupled to said first operating member
to rotate in a first rotational direction and operatively coupled to said second operating
member to rotate in a second rotational direction that is opposite to said first rotational
30 direction; and

a retaining mechanism operatively coupled to said cable winding mechanism to selectively hold said cable winding mechanism in one of a plurality of shift positions.

5 22. The bicycle shift operating device according to claim 21, wherein
 said cable winding mechanism includes a cable winding member and a ratchet
 member mounted to rotate together, and
 said retaining mechanism includes a locking member operatively engaged
 with said ratchet member to hold said cable winding member in one of said plurality
10 of shift positions.

 23. The bicycle shift operating device according to claim 22, further
 comprising
 an operating link having a first end pivotally coupled to said first operating
15 member and a second end pivotally coupled on a first fixed pivot axle.

 24. The bicycle shift operating device according to claim 23, wherein
 said cable winding member and said ratchet member are mounted on said first
 fixed pivot axle.

20 25. The bicycle shift operating device according to claim 23, wherein
 said cable winding member and said ratchet member are mounted on a pivot
 axle spaced from said first fixed pivot axle.

25 26. The bicycle shift operating device according to claim 23, wherein
 said operating link includes a winding pawl arranged to rotate said ratchet
 member upon movement of said first operating member from a normal rest position to
 a shift position.

30 27. The bicycle shift operating device according to claim 22, wherein
 said second operating member is arranged to disengage said locking member
 from said ratchet member.

28. The bicycle shift operating device according to claim 23, wherein
said first operating member is pivotally coupled to a first end of a follower
link that has a second end mounted on a second fixed pivot axle such that said first
operating member, said operating link and said follower link form three links of a four
bar linkage that controls movement of said first operating member.

29. The bicycle shift operating device according to claim 22, wherein
said cable winding mechanism further includes a biasing member arranged to
apply an urging force to rotate said cable winding member and said ratchet member.

30. The bicycle shift operating device according to claim 21, wherein
said bicycle shift operating device is coupled to a handle bar mounting bracket
that includes a brake lever.

31. The bicycle shift operating device according to claim 21, further
comprising
a return biasing member arranged to operatively apply an urging force on said
first operating member to urge said first operating member from a shift position to a
normal rest position.

32. The bicycle shift operating device according to claim 21, wherein
said cable winding mechanism includes at least three of said shift positions.